UNITED STATES PATENT AND TRADEMARK OFFICE

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10/522,083	01/21/2005	Bernardo De Oliveira Kastrup Pereira	260683	7578

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LEYDIG VOIT & MAYER, LTD
TWO PRUDENTIAL PLAZA, SUITE 4900
180 NORTH STETSON AVENUE
CHICAGO, IL 60601-6731

EXAMINER
DENG, ANNA CHEN

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _21 March 2008_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-19_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-19_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This action is in response to amendment filed on 3/21/2008.

2.   The objection to Abstract is withdrawn in view of applicant's amendment.

3.   The objection to claim 1 is withdrawn in view of applicant's amendment.

4.   The objection to claim 10 is withdrawn in view of applicant's amendment.

5.   The rejection under 35 U.S.C. 101 to claim 19 is withdrawn in view of

applicant's amendment.

6.   Claims 1-19 are pending.

7.   Claims 1-19 stand finally rejected.

Response to Amendment

Claim Rejections - 35 USC § 112

8.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and
> process of making and using it, in such full, clear, concise, and exact terms as to enable any
> person skilled in the art to which it pertains, or with which it is most nearly connected, to make
> and use the same and shall set forth the best mode contemplated by the inventor of carrying
> out his invention.

9.   Claim 19 is rejected under 35 U.S.C. 112, first paragraph, as failing to

comply with the written description requirement. The claim(s) contains subject

matter which was not described in the specification in such a way as to

reasonably convey to one skilled in the relevant art that the inventor(s), at the

time the application was filed, had possession of the claimed invention. Claim 19

has been amended to add new matter as recites "a computer-readable medium"

that is not in the Specification in the specification in such a way as to reasonably

convey to one skilled in the relevant art that the inventor(s), at the time the

application was filed, had possession of the claimed invention. Application is

required to withdraw this new matter.

Claim Rejections - 35 USC § 103

10.　　The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11.　　Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Aubury US 2003/0140337 A1 (hereinafter Aubury), In view of Bickmore et

al. USPN 6,857,102 B1 (hereinafter Bickmore), further in view of Ii et al. USPN

7,143,392 B2 (hereinafter Ii).

Per Claim 1 (Currently amended):

　　　　Aubury teaches **a method for partitioning a specification in a source

code** (Aubury, [0043], "provides a hardware/software codesign system which

receives <u>a specification</u> of a target system in the form of behavioral description,

i.e. a <u>description in a programming language</u> such as can be written by a

computer programmer, and <u>partitions it</u> and compiles it to produce hardware and

software"; [0044], "The partitioning means can include a parser for parsing the

input behavioral description The description can be in a familiar computer

language such as C, ... an obligatory partition to software or an obligatory

partition to hardware"; emphasis added); **thereby facilitating editing of a**

resulting specification in the source code (Aubury, [0176], FIG. 7, A first

portion of the blocks is assigned to hardware inoperation 706 and a second

portion of the blocks is assigned to software in operation 708. ...If the terminating

condition has not been met, then the contents of the first and second portion of

the blocks are modified in operation 714 and the above operations are repeated

in operation 716).

Aubury does not explicitly teach **first converting the specification into a**

plurality of abstract syntax trees; partitioning the plurality of abstract

syntax trees into at least a first set and a second set of abstract syntax

trees; second converting, after the partitioning step, the first set of abstract

syntax trees and the second set of abstract syntax trees back to source

code.

However, Bickmore teaches **first converting the specification into a**

plurality of abstract syntax trees (Bickmore, col. 16, lines 56-67, the abstract

syntax tree corresponding to each re-authored page or sub-page as the

document size evaluation circuit indicates that the abstract syntax tree for a

particular re-authored page or sub-page...The sub-pages to be re-authored list

637 stores the abstract syntax trees (plurality of AST) for those sub-pages

generated by transforming the original document or an earlier sub-page. These

sub-pages will generally contain the images of any reduced-size images or any

elided images, as well as the full text of any text segments that have had content

elided from them (specification)); **partitioning the plurality of abstract syntax trees into at least a first set and a second set of abstract syntax trees** (Bickmore, col. 8, lines 41-52, The Indexed Segment transform first attempts to find page elements that can logically be partitioned…This transfer takes an input page, segments the content into sub-pages by allocating some number of items to each…then the Indexed Segment transform performs a secondary partitioning that partitions text blocks); **second converting, after the partitioning step, the first set of abstract syntax trees and the second set of abstract syntax trees back to source code** (Bickmore, col. 18, line 62 through col. 19, line 20, Once the abstract syntax tree for the first page of the transformed document (HTML document/source code) is determined to be good enough, that abstract syntax tree is output to the tree-to-document remap circuit 670, which renders the first re-authored sub-page from that abstract syntax tree…Once a request for that subpage (HTML/source code) is received by document re-authoring system 600, the abstract syntax tree for that requested subpage is output to the tree-to-document remap circuit 670, which renders the requested re-authored sub-page (HTML/source) from that abstract syntax tree).

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method discloses Aubury to include **first converting the specification into a plurality of abstract syntax trees; partitioning the plurality of abstract syntax trees into at least a first set and a second set of abstract syntax trees; second converting, after the partitioning step, the first set of abstract syntax trees and the second set of**

abstract syntax trees back to source code using the teaching of Bickmore.

The modification would be obvious because one of ordinary skill in the art would

be motivated to provide a method to construct a parse tree or abstract syntax

tree representation of the document, the apply a series of transformations to the

parse tree, then map each resulting transformed parse tree back into a document

representation (Bickmore, col. 11, lines 60-67).

The combination of Aubury and Bickmore does not explicitly teach **the

first set of abstract syntax trees to be implemented by a first processor and

the second set of abstract syntax trees to be implemented by a second

processor**.

However, Ii teaches **the first set of abstract syntax trees to be

implemented by a first processor and the second set of abstract syntax

trees to be implemented by a second processor** (Ii, col. 28, lines 11-14, an

application system can be multi-threaded, partitioned into different processes,

run on different processors).

It would have been obvious to one having ordinary skill in the computer art

at the time of the invention was made to modify the method discloses by Aubury

and Bickmore to include **the first set of abstract syntax trees to be

implemented by a first processor and the second set of abstract syntax

trees to be implemented by a second processor** using the teaching of Ii. The

modification would be obvious because one of ordinary skill in the art would be

motivated to reverse engineering source code in a plurality of structured

languages into Abstract Syntax Trees (ASTs), which represent all of the

information in said source code, and to automatically analyze, display, and/or

manipulate those ASTs (li, Abstract).

Per Claim 2:

The rejection of claim 1 is incorporated, Aubury further teaches **wherein

the second processor is a co-processor** (Aubury, FIG. 22, [0034], "are

determined for first and second processors for processing an application in

operation 2202. Reconfigurable hardware is then configured in operation 2204 to

provide at least one of the first and second processors such as programming a

processor into a portion of an Field Programmable Gate Array (FPGA)", also,

[0050], "a set of customizable (e.g. FPGA-based) processors").

Per Claim 3:

The rejection of claim 2 is incorporated, Aubury further teaches **wherein the

first processor is a general-purpose processor** ([0050], "a set of

customization (e.g. FPGA-based) processors and custom hardware; [0341], "at

least one of the processors implemented in the reconfigurable hardware may

designed by defining an instruction width, a width of internal memory and a stack

address width; assigning processor opcodes; defining registers; ... and defining

the processor based on the processor description").

Per Claim 4 (Currently amended):

The rejection of claim 1 is incorporated, Bickmore further teaches **wherein the second converting step comprises converting the first set of abstract syntax trees to a first partial specification in the source code and converting the second set of abstract syntax trees to a second partial specification in the source code** (Bickmore, col. 18, line 62 through col. 19, line 20, Once the abstract syntax tree for the first page of the transformed document (HTML document/source code) is determined to be good enough, that abstract syntax tree is output to the tree-to-document remap circuit 670, which renders the first re-authored sub-page from that abstract syntax tree...Once a request for that subpage (HTML/source code) is received by document re-authoring system 600, the abstract syntax tree for that requested subpage is output to the tree-to-document remap circuit 670, which renders the requested re-authored sub-page (HTML/source) from that abstract syntax tree).

Per Claim 5:

The rejection of claim 1 is incorporated, Bickmore further teaches **wherein the step of partitioning the plurality of abstract syntax trees into a first set of abstract syntax trees and a second set of abstract syntax trees comprises a step of out-lining at least one abstract syntax tree based on profile data** (Bickmore, FIG. 1, col. 8, lines 26-33, The first approach is full outlining which works by keeping only section headers and eliding all content...The second approach is to-level outlining. In the to-level outlining, a cutoff level in the section hierarchy is determined and all content below that level,

including lower-level section headers, is elided, but all content above that level is kept).

Per Claim 6:

The rejection of claim 1 is incorporated, Bickmore further teaches **wherein the step of partitioning the plurality of abstract syntax trees into a first set of abstract syntax trees and a second set of abstract syntax trees comprises a step of out-lining at least one abstract syntax tree based on programmer provided information** (Bickmore, FIG. 1, col. 8, lines 26-33, The first approach is full outlining which works by keeping only section headers and eliding all content...The second approach is to-level outlining. In the to-level outlining, a cutoff level in the section hierarchy is determined and all content below that level, including lower-level section headers, is elided, but all content above that level is kept; also, col. 13, lines 8-33, The first thing that a user of the document re-authoring software systems and methods of this invention must do is specify the size of display for the device being used and indicate the font size of the default browser font being used. This information is needed in order to estimate the screen area requirements of text blocks (partition)).

Per Claim 7:

The rejection of claim 1 is incorporated, Aubury further teaches **A co-design method for producing a target system** ([0032], "provides a hardware/software codesign system which can target a system"), **wherein the target system**

comprises a first processor and at least a second processor ([0048]-[0051],

"The sort of target systems which can be produced include: a fixed processor or

processor core, ... a set of customizable (e.g. FPGA-based) processors ... a

system on a chip containing fixed processors and an FPGA"); **the co-design**

method comprising the method for partitioning a specification in a source

code according to claim 1 ([0032], "provides a hardware/software codesign

system which can target a system in which the hardware or the processors to <u>run</u>

<u>the software</u> can be customized according to the functions <u>partitioned to it</u>",

emphasis added); also see discussion in claim 1, wherein all claimed limitations

also have been addressed and or covered in cited areas as set forth above.

Per Claim 8 (Currently amended):

The rejection of claim 7 is incorporated, Bickmore further teaches **converting**

the first set of abstract syntax trees to a first partial specification in the

source code and converting the second set of abstract syntax trees to a

second partial specification in the source code (Bickmore, col. 16, lines 56-

67, the abstract syntax tree corresponding to each re-authored page or sub-page

as the document size evaluation circuit indicates that the abstract syntax tree for

a particular re-authored page or sub-page...The sub-pages to be re-authored list

637 stores the abstract syntax trees (plurality of AST) for those sub-pages

generated by transforming the original document or an earlier sub-page).

Per Claim 9:

The rejection of claim 8 is incorporated, Aubury further teaches **wherein the second processor is a co-processor** ([0050], "a set of customizable (e.g. FPGA-based) processors") **and wherein the second partial specification is converted to a specification of the co-processor** (FIG. 22, [0034], "are determined for first and second processors for processing an application in operation 2202. Reconfigurable hardware is then configured in operation 2204 to provide at least one of the first and second processors such as programming a processor into a portion of an Field Programmable Gate Array (FPGA)"; [0153], "an RTL description which can be output to a RTL synthesis system 414 using a hardware description language").

Per Claim 10 (Currently amended):

The rejection of claim 9 is incorporated, Aubury further teaches **wherein the first processor is a general-purpose processor** ([0049], "a fixed processor or processor core") **and wherein the first partial specification is converted to object code by means of a compiler** ([0143], "the compile method on the hardware compiler class compiles the description to hardware by converting the input description on an RTL description, the compile method on the Processor A compiler compiles a description to machine code"; [0153], "The result of the hardware compilation …is an RTL description which can be output to a RTL … using a hardware description language(e.g., Handel-C or VHKL)"; [0163], "The output of the software compilation/processor parameterization process is

machine code to run on the processor together with a description of the

processor to be used").

Per Claim 11:

The rejection of claim 10 is incorporated, Aubury further teaches **a step for**

defining an interface between the general-purpose processor and the co-

processor ([0039], "an interface generator for generating interfaces between the

hardware and software").

Per Claim 12:

The rejection of claim 9 is incorporated, Aubury further teaches **wherein**

the specification of the co-processor comprises a specification of an ASIC

([0039], "fixed hardware and a customizable processor. Thus, the customizable

part could be formed on an FPGA, or for instance, an ASIC").

Per Claim 13:

The rejection of claim 9 is incorporated, Aubury further teaches **wherein**

the specification of the co-processor comprises a specification of a

programmable processor ([0043], "a description in a programming language

such as can be written by a computer programmer, and partitions it and compiles

it to produce hardware and software").

Per Claim 14:

The rejection of claim 9 is incorporated, Aubury further teaches **wherein the specification of the co-processor comprises a specification of a reconfigurable processor** ([0193], "the processor may be created in reconfigurable logic").

Per Claim 15 (Currently amended):

The rejection of claim 11 is incorporated, Aubury further teaches **wherein the interface between the general-purpose processor and the co-processor comprises a remote function call** ([0198], "The system must dial up an Internet service provider, and establish a connection with the remote game, which will running on a workstation"); **the remote function call having a set of parameters** ([0140], "Interfaces which are to be implemented using a resource which can be parameterized (such as a channel on an FPGA), are synthesized using the parameterizations decided by the partitioner"); **the set of parameters comprising an identifier for the function to be called, at least one reference pointing to the input data of the function to be called and at least one reference pointing to the result data of the function to be called** ([0063], "an attribute may be added to input code for identifying which portion of the functionality is to be put in software. ... the attribute may further specify a target processor for processing the software implementing the portion of functionality").

Per Claim 16:

The rejection of claim 15 is incorporated, Aubury further teaches **wherein the set of parameters of the remote function call further comprises a reference to a memory location used for storing information on the return status of the function to be called** ([0186], "the processor starts with a definition of the instruction width, and the width of the internal memory and stack addresses. This is followed by an assignment of the processor opcodes").

Per Claim 17 (Currently amended):

The rejection of claim 7 is incorporated, Aubury further teaches **wherein the target system further comprises a system memory and a system bus** (FIG. 21, [0339], "a number of other units interconnected via a system bus 2112"); **the system memory, the first processor and the second processor being coupled by the system bus** (FIG. 21, [0039], "a central processing unit 2110, such as a microprocessor, and a number of other units interconnected via a system bus 2112… includes a Random Access Memory (RAM) 2114, Read Only Memory (ROM) 2116").

Per Claim 18 (Currently amended):

The rejection of claim 10 is incorporated, Aubury further teaches **wherein the general-purpose processor is a digital signal processor** (FIG. 21, [0039], "a central processing unit 2110, such as a microprocessor, and a number of other units interconnected via a system bus 2112… includes a Random Access Memory (RAM) 2114, Read Only Memory (ROM) 2116").

Per Claim 19 (Currently amended):

This is the computer-readable medium including computer-executable

instructions for implementing all the steps of the method in claim 1, wherein all

claimed limitation have been address and/or covered in cited areas as set forth in

claim 1. Thus, accordingly, this claim is also obvious.

Response to Arguments

Applicant's arguments with respect to claims 1-19 have been considered

but are moot in view of the new ground(s) of rejection.

Conclusion

12.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of

time policy as set forth in 37 CFR 1.136 (a).

A shortened statutory period for reply to this final action is set to expire

THREE MONTHS from the mailing date of this action. In the event a first reply is

filed within TWO MONTHS of the mailing date of this final action and the advisory

action is not mailed until after the end of the THREE-MONTH shortened statutory

period, then the shortened statutory period will expire on the date the advisory

action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will

the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

13.   Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Anna Deng whose telephone number is 571-

272-5989. The examiner can normally be reached on Monday to Friday 9:30 AM

- 6:00 PM.

        If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Wei Zhen can be reached on 571-272-3708. The fax

phone number for the organization where this application or proceeding is

assigned is 571-273-8300.

        Any inquiry of a general nature or relating to the status of this application

or proceeding should be directed to the TC2100 Group receptionist whose

telephone number is 571-272-2100.

        Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through

Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-

free).

/Anna Deng/

Examiner, Art Unit 2191

07/17/2008

/Wei Zhen/

Supervisory Patent Examiner, Art Unit 2191